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Article

Introduction of New Food Products in China: Is There a Trend towards Healthier and Safer Products?

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Abstract: The Chinese society has undergone an important transformation in the last 20 years, with changes in lifestyles due to increasing urbanization and rising income levels. The emergence of modern supermarkets, convenience stores, and hypermarkets has run alongside the changes in consumers' lifestyles, revolutionizing the Chinese food system and the nature of its food supply. Changes in food consumption patterns have also accompanied these shifts. One of the distinguishing aspects of this modern food sector is the continuous introduction of new foods and beverages to the market, and the communication of their associated attributes through labels, in-store displays, and advertising. The purpose of this paper is to explore whether there have been any trends towards the introduction of products with greater health, nutrition, and food safety attributes to help consumers attain healthier diets making trade-offs between purchase options. Results show that there has been a rise in the number of new products in the Chinese food retail sector, particularly branded products introduced mainly by Chinese companies making food safety claims. It is clear, however, that the new food and drink products follow the consumption trends highlighted in the literature, and, therefore, there are low chances that they will positively influence the Chinese diet to an important degree, as they are mainly reinforcing the observed dietary trends.

Keywords: China's new product development; food supply in China; health and food safety attributes; food security; food science

1. Introduction

In recent years, China, the world's most populated country and the second biggest economy in the world, has been experiencing changes in the distribution of its population as well as in the level of its wealth, which has directly affected people's lifestyles (Liu et al. 2014; Mintel 2013; Gordon-Larsen et al. 2014). During the last 15 years, China's population has increased by 7.8% (107 million people), and in the same time, the urban population in China has expanded from less than 1.5% of the total population in 2000, to more than 56% in 2015. This growth has also been reflected in the population density (person/square km) in urban areas, which grew by 81% during this period, whilst real disposable income rose by about 60% during the same period.

The emergence of 'western style' retailers in China has run alongside these changes in the consumers' lifestyles. Hu et al. (2004), Reardon and Swinnen (2004), and Reardon and Hopkins (2006), among others, have explained the strong link between the expansion of modern supermarkets and population growth, and rapid urbanization and rising incomes. According to Zhai et al. (2014), the emergence of modern supermarkets, convenience stores, and hypermarkets has transformed the food sector and the nature of food supply in China, where the number of retailer from outside of China entering the market have increased since 1992. China's food system used to be dominated by small farms, ration stores, and fresh markets, but this has now shifted to a direct relationship between the manufacturer or processor and

the supermarket, with an accompanying expansion of imported food products (Zhai et al. 2014; Popkin 2014; Si et al. 2016). Retailers have created new forms of selling that have allowed firms to introduce new, safe, and high-quality foods and beverages to the Chinese market at competitive prices (Gale and Thomas 2005; Gale et al. 2015). As part of this retail revolution, international food companies such as Kraft, Heinz, Coca-Cola, PepsiCo, and Nestlé, and even foreign retail chains such as Wal-Mart, Carrefour, and Tesco, have become established names in Chinese households and are leading to fierce competition between domestic and foreign grocery retailers (Dawson 2013; Cheng 2017). In 2015, American retail giant Wal-Mart generated more than 73.5 billion RMB pre-tax sales, owning 432 stores across China, with a store number growth rate of 5.1% (USDA 2017). In 2018, the Wal-Mart group was ranked as the third largest retailer in China (USDA 2018).

A survey conducted by Ipsos in 2013 revealed that 53% of Chinese consumers liked to try new and adventurous foods (Alick 2016; Ipsos 2014) emphasizing the potential impact of the expanding supply on consumers' food consumption habits. According to Zhou et al. (2015), Chinese consumers had adapted their eating behaviour to the new food landscape, following the expansion of modern retail in urban areas. The major shift had been the availability of packaged food and beverages (Popkin 2014; Baker and Friel 2016; Monteiro et al. 2013), with the result of an increase in snacking and consumption of processed food such as breakfast cereals, confectionaries, ready-to-eat meals, and carbonated sodas, among others (Hawkes and Ruel 2011), and a decrease in the consumption of food prepared at home (Zhai et al. 2014). In addition, the population (mainly middle class and younger people) were diversifying their diets and increasing the demand for products such as meats, dairy, edible oils, and fruits and vegetables (Gomez and Ricketts 2013).

Taking into account the fact that highly processed foods are more convenient and often more palatable, but often high in calories, their consumption has been associated with increasing rates of obesity or obesity-related non-communicable diseases, such as diabetes (Gomez and Ricketts 2013; Popkin and Kenan 2016; Fiolet et al. 2018). In fact, where in the past a large portion of China's population was under-nourished, there is now a rapid increase in the rates of obesity (Gordon-Larsen et al. 2014; Shang et al. 2012). However, note that at the same time, certain processed foods are fortified to deal with specific micronutrient deficiencies in order to help in reducing malnutrition levels (Gomez and Ricketts 2013).

Alongside the modernization of its food system, China's fast-growing economy has stimulated a change in focus from food supply (i.e., based on food security) to food safety (Lam et al. 2013). The food industry has the primary responsibility to prevent food safety problems, but considering the scale, diversity, and complexity of China's domestic food industry, which consists of roughly 450,000 food production and processing companies, of which close to 80% have fewer than 10 employees each, it is challenging to ensure their compliance with high safety standards. Moreover, small enterprises might not be able to implement the vast array of required tests, which can be costly. As a consequence, many food safety scandals have emerged in the last 15 years, mainly due to illegal chemical additives being added during food processing. Although the Chinese authorities consider food safety a national priority, adopting key international standards, the number of food scandals has not declined, and public confidence has not been restored (The Lancet 2014).

Although some research is available on health and food safety issues associated with food production and consumption in China (e.g., Zhou et al. 2015; The Lancet 2014), little is known about the introduction of new food and drink products with health and food safety attributes. This area of research is important, because, on one hand, it provides an indication of what factors, in the eyes of suppliers (i.e., retailers, reflected through their private labels, and manufacturers, through branded products), are important to consumers, and this is reflected in the claims that are made when marketing their products and highlighting particular attributes (e.g., 'containing only natural ingredients'). On the other hand, as new products alter the range available to consumers, it is important to explore whether suppliers show any interest in helping consumers achieve better food consumption patterns. We used the works of Smith 2008 (sustainability) and Martinez et al. 2018 (healthy food) as a framework. To

understand the rationality behind manufacturers and retailers on the introduction of healthier food, they emphasized that a food supply chain approach must be considered. [Smith \(2008\)](#) argued that corporate social responsibility and the introduction of standards to pass responsibility along the chain was the only way to move towards a more sustainable supply chain. The same could apply to the case of healthy products. The work from [Martinez et al. \(2018\)](#) with retailers showed that although suppliers were supposed to influence retail decisions, retail managers believed that they kept the ultimate decision on their business practices. However, these were influenced by their knowledge about the availability of healthy options, consumer demand, and high price.

The purpose of this paper is to explore the launching of food and drink products with health and food safety attributes in the Chinese market. Specifically, the purpose of this empirical study is to address the following three points:

1. To identify whether, through launching new products, over time retailers and manufacturers were improving the assortment of products with health and food safety attributes available to consumers; in this regard, whether they could be considered 'agents of change' towards healthier patterns of consumption.
2. To discover which companies were leading the introduction of new products making health and food safety claims and in what categories.
3. To explore whether foreign retailers and manufacturers played a significant role in the introduction of food and drink products with health and food safety attributes.

The structure of this paper is as follows—it begins with a brief literature review focused on the role of suppliers in shaping consumers' diets. This is followed with the empirical analysis, which provides a description of the data and statistical methods used in the paper. The next section presents and discusses the results and finally some conclusions are drawn.

2. The Role of Suppliers in Shaping Consumers' Grocery Purchasing Decisions

According to product diffusion literature ([Talukdar et al. 2002](#)), the potential penetration of a new developed product depends on the ability of consumers to pay for it (i.e., affordability), their willingness to pay for it (i.e., if the product provides value for money), and the physical accessibility of the product; if consumers do not have access to the product, they will never uptake it and it will not have an effect on their food choice. A key question for this paper is what is offered on retailers' shelves for companies to make trade-offs between purchase options. [Dawson \(2013\)](#) stated that although, through their food buying activity, consumers shaped many of the dimensions of what retailers offered (including which new products to introduce), the decisions on what was available to consumers were made by the retailer (see also [Dawson et al. 2008](#)). In other words, consumers choose from the options offered by suppliers, leaving such businesses in a powerful position to shape consumers' choice ([Revoredo-Giha 2014](#)). In this regard, the literature explained that the defining characteristic of the point-of-purchase retailers was their capacity to establish the boundaries of consumer choice (e.g., [Bava et al. 2009](#); [Dawson et al. 2008](#); [Dawson 2013](#); [Martinez et al. 2018](#)). Since many purchasing decisions were made at the retail point, these boundaries directly affected those decisions ([Bava et al. 2009](#)).

Another aspect that is in the hands of suppliers is what characteristics of the products are communicated to consumers. One of the major changes in the food system is that personal communication between buyers and sellers has been replaced with communication through food labels, in-store displays, and advertising, representing important changes in the way Chinese consumers make purchasing decisions ([Grunert et al. 2015](#)). Many new retail models have emerged in the Chinese market, including 24-h unstaffed convenience stores (Fung business intelligence 2018) and businesses in the fast-growing e-commerce sector being the mobile shopping alternative extensively accepted by consumers. This is especially important when considering credence attributes (e.g., health and food safety attributes), which must be communicated on the package to inform consumers of their occurrence. In this context, consumers look for information on the label as the product delivery system

and the supplier (manufacturers and retailers) decide which message to place on it (Dawson 2013). As stated by Machín et al. (2018), package information can empower consumers to identify unhealthy food products and to make more informed food choices.

The above points on retailers' decisions of what to offer and how to offer them to consumers (e.g., which product attributes to highlight) make them, and also manufacturers, the major influencers in shaping consumers' food preferences and choices (Dawson 2013; Liu et al. 2015; Martinez et al. 2018). Therefore, by exploring the trends of which new products are introduced in the market, it is possible to infer to what extent suppliers are interested in improving the food and drink identifying as healthier and safer products; this is the focus of the rest of the paper.

3. Material and Methods

3.1. Data

The data analysed in this paper is taken from Mintel's Global New Products Database (GNPD), which provides information about new products launched in selected countries around the world. For new products launched in the Chinese market, the dataset contains information on 90,720 products from September 1997 to December 2016 by 22,269 manufacturing or retailing firms and considering 30,742 different brands. Figure 1 presents the evolution of the launch of products for the period of 1997–2016. Although the database starts from 1997, only data since the year 2000 were used for the trend analysis based on the suggestion of Mintel due to issues with data collection during the first three years of the dataset. In the total sample, 96.9% were branded products and the remaining 3.1% were private label ones. The launched products in the database corresponded to five groups—new products, new variety /range extension, new packaging, new formulation, and re-launched products. Of these groups, new products and new variety /range extension were the most common, representing 47% and 36%, respectively, of all the launched products. This was followed by products introduced under new packaging, comprising 14% of total launched products.

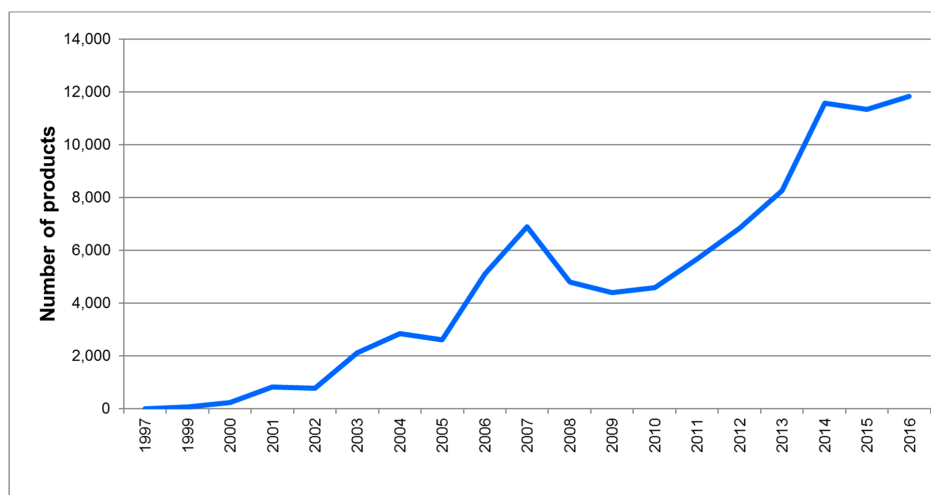


Figure 1. Number of products launched during 1997–2016. Source: Own elaboration based on Mintel's Global New Products Database (GNPD) data.

The GNPD classified products into 26 categories (which were also broken down into 71 sub-categories)—snacks, bakery, sauces and seasonings, dairy, sugar and gum confectionery, processed fish, meat and egg products, juice drinks, hot beverages, meals and meal centers (i.e., ready meals), desserts and ice cream, fruit and vegetables, baby food, breakfast cereals, alcoholic beverages, chocolate confectionery, side dishes, other beverages, ready-to-drink (RTDs), water, sweet spreads, carbonated soft drinks, soup, sports and energy drinks, sweeteners and sugar, and savory spreads. Table 1 presents the frequency distribution of launched products by category.

Table 1. Frequency distribution of launched products by category ¹.

Product Category	Frequencies	
	Absolute	Relative (%)
Snacks	19,282	21.25
Bakery	13,100	14.44
Sauces and seasonings	9045	9.97
Dairy	7298	8.04
Sugar and gum confectionery	5200	5.73
Processed fish, meat, and egg products	4649	5.12
Juice drinks	4374	4.82
Hot beverages	4178	4.61
Meals and meal centers	3577	3.94
Desserts and ice cream	2334	2.57
Fruit and vegetables	2059	2.27
Baby food	1907	2.10
Breakfast cereals	1744	1.92
Alcoholic beverages	1653	1.82
Chocolate confectionery	1636	1.80
Side dishes	1506	1.66
Other beverages	1363	1.50
RTDs	1320	1.46
Water	1097	1.21
Sweet spreads	941	1.04
Carbonated soft drinks	839	0.92
Soup	532	0.59
Sports and energy drinks	504	0.56
Sweeteners and sugar	488	0.54
Savoury spreads	94	0.10
Total	90,720	100.00

Source: Own elaboration based on Mintel's GNPD database. Note: ¹ Considers data from January 1997 to December 2016.

It is of particular importance for this paper that the dataset also provides information on the products' positioning claims (i.e., the product attributes that suppliers want to communicate to consumers). The quality of the claims that manufacturers put on the label must follow the regulation of the country where the product will be marketed. In the case of China, all prepackaged food nutrition information on nutrition labelling must follow the standards of the Food Nutrition Labelling Act (FNLA) which was first introduced in 2011, and revised in 2013 and 2015. FNLA states that 'Labels, instructions and packaging of food and food additives may not contain false or exaggerated information, nor may they make statements about disease prevention and treatment functions'. The identification of the claim has been done through the description of the product label and is a variable in the original database.

A total of 74 different claims were found in the dataset, which were divided into six groups—convenience (e.g., microwaveable), demographic (if destined for a particular demographic), health and nutrition (e.g., low in calories), safety (e.g., no additives/preservatives) sustainable (e.g., environmentally friendly packaging) and other (e.g., premium, cobranded, and novel)¹. It is important to note, as shown in Figure 2, that a large percentage of the new products introduced in the market do not carry any claim (57% as of 2016). However, this percentage has shown a decreasing trend since 2004 when it was 73%. The increasing proportion of products introduced with claims can be associated with the transformation of the Chinese food sector and the need to convey more information about the products to consumers.

¹ The classification of claims was done as follows: for the case of health claims following European Commission Nutrition and Health Claims' definition (claims relating to the growth, development and functions of the body; referring to psychological and behavioural functions; on slimming or weight-control; reducing a risk factor in the development of a disease; and referring to children's development), and for the safety claims, we considered those claims that differentiated the product with the intention to precaution a safety.

3.2. Methods

The methods used in the paper comprised descriptive statistics (i.e., frequency distributions and cross tabulations) and trend analyses. With regards to the trend analysis, since the number of launched products is increasing in all the studied categories, in order to explore in which categories the growth of products with health, nutrition, and food safety attributes has been more important, the information was transformed to location quotients (Mayer and Pleeter 1975). Since not all the product categories are equally active in the launching of new products, location quotient allowed for a comparison of the growth of a specific group of products in a category (e.g., those making health claims) with the growth of those products considering all categories.

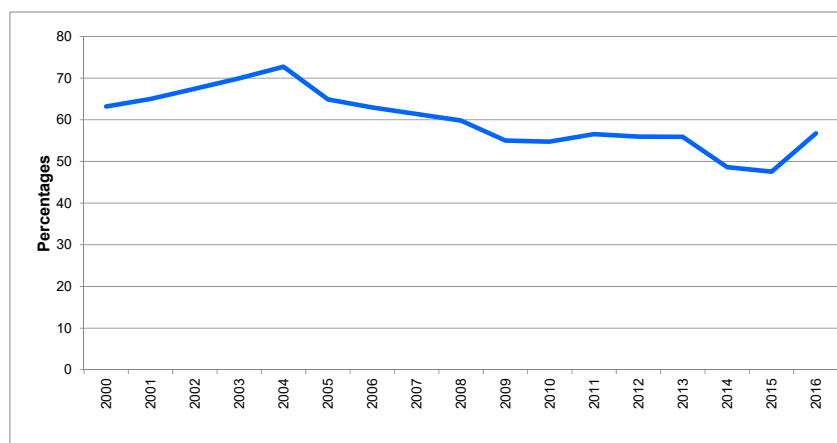


Figure 2. Products launched without any claim during 2000–2016. Source: Own elaboration based on Mintel’s GNPD data. Note: As percentage of the total number of launched products.

A location quotient is a way of measuring the relative contribution of one specific category to the whole for a given outcome. Let x_i and n_i denote the number of products launched with a particular attribute (e.g., health) in category i and the total number of products launched in category i , respectively. Similarly, let x and n be the number of launched products with a particular attribute considering all the categories and the total number of launched products, respectively. Then, the location quotient for the category i is defined as in Equation (1)

$$LQ_i = \frac{\frac{x_i}{n_i}}{\frac{x}{n}} = \frac{r_i}{r} \quad r > 0 \quad (1)$$

Finally, the location quotients were subjected to a trend analysis using linear regressions:

$$y_i = \alpha_i + \beta_i t \quad (2)$$

where α_i and β_i are the trend regression parameters to be estimated, y_i is the location quotient, and t is a trend variable that takes the number 0 in year 2000, 1 in 2001, and so forth. A positive value of slope β_i indicated that the proportion of products with health nutrition and food safety attributes in category i was growing faster than the proportion of those products when all the categories were included.

4. Results

4.1. Overview of the Launching of New Food and Drink Products in China

As shown in Figure 1, the Chinese market has been experiencing a significant positive trend in terms of the number of new food and drink products launched, particularly since 2009 after recovering

from the 2007–2008 financial crisis (Li et al. 2012). This picture illustrates the transformation of the Chinese food system (e.g., Hawkes 2008; Ortega et al. 2014).

Table 1 presents a frequency distribution of launched products by category (Figure 3 presents the evolution since 2000 of the top 10 food and drink categories in terms of the number of launches). The snacks and bakery categories were the most active ones, representing 36% of the total launched products. The data supported Hawkes and Ruel (2011) and Zhai et al. (2014) views that Chinese consumers were increasingly interested in the consumption of snacks. Whilst in 2000, only 116 new snack products were introduced, in 2016 that number had increased to 3219. The figure also showed a positive trend for ‘processed fish, meat and egg products’ and ‘fruits and vegetables’. These trends mirrored those observed in the Chinese diet literature (e.g., Zhai et al. 2014).

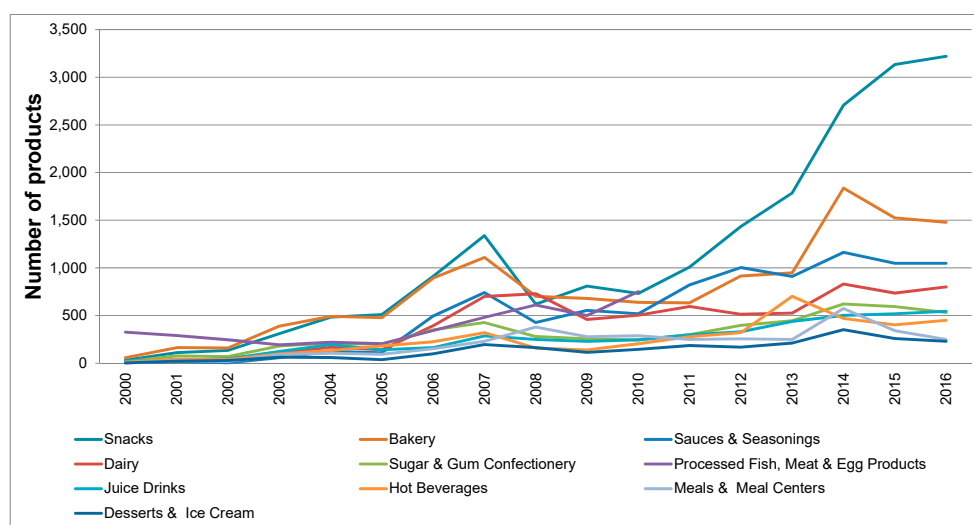


Figure 3. Number of products launched for the top 10 food and drink categories during 2000–2016.

Source: Own elaboration based on Mintel’s GNPD data.

In contrast with what has been observed in some western countries (e.g., see Revoredo-Giha 2014 for the UK case), there was a low concentration in terms of the number of companies launching new products. Thus, the 50 most important companies launching products for the period of 1997–2016 only represented about 13% of all the new products launched in the Chinese market (the top 10 cover only 5%). With regards to their origin, of the top 20 companies, 12 were Asian (i.e., Chinese or from another Asian country) and 8 were western. However, when the entire sample was considered, about 67% of the products were found to have been introduced by Chinese companies.

Figure 4 shows the evolution of products since 2000 according to claims. As of 2016, the most popular claims were those associated with demographic groups (e.g., children). Health and nutrition was the most popular until 2012; however, this has showed a slight decrease since 2014. The figure also indicates a steady increase in the number of products making food safety claims, which is in line with consumers’ increasing concerns about food safety issues (The Lancet 2014) and with the introduction of the Food Nutrition Labelling Act in 2011. Table 2 focuses on the products making health, nutritional, and food safety claims (which account for about 27% of all the claims made for the period of 1997–2016). The food safety claim of ‘no additives or preservatives’ is the most frequent, accounting for almost 27.1% off all products considered in the table. This can easily be explained as a reaction to the number of food-related scandals in China (e.g., The Lancet 2014). Furthermore, it is important to highlight the link between food additives and obesity identified by the literature (Chassaing et al. 2015). This is followed by ‘low or reduced sugar’ and ‘vitamin mineral fortified’ claims, which represent 10.6% and 10%, respectively.

Table 2. Frequency distribution of products with health, nutrition, and food safety claims ¹.

Claims	Claim	Frequencies	
	Group	Absolute	Relative (%)
No additives/preservatives	Food safety	9705	27.11
Low/no/reduced sugar	Health and nutrition	3802	10.62
Vitamin/mineral fortified	Health and nutrition	3603	10.06
Other (functional)	Health and nutrition	2591	7.24
Added calcium	Health and nutrition	1724	4.82
Digestive (functional)	Health and nutrition	1669	4.66
High/added fiber	Health and nutrition	1400	3.91
Low/no/reduced fat	Health and nutrition	1344	3.75
GMO-free	Food safety	1121	3.13
Brain and nervous system (functional)	Health and nutrition	1034	2.89
Bone health	Health and nutrition	936	2.61
Prebiotic	Health and nutrition	813	2.27
High protein	Health and nutrition	806	2.25
All natural product	Food safety	759	2.12
Low/no/reduced cholesterol	Health and nutrition	692	1.93
Low/no/reduced transfat	Health and nutrition	500	1.40
Immune system (functional)	Health and nutrition	495	1.38
Low/no/reduced calorie	Health and nutrition	479	1.34
Low/no/reduced sodium	Health and nutrition	364	1.02
Antioxidant	Health and nutrition	348	0.97
Cardiovascular (functional)	Health and nutrition	292	0.82
Low/no/reduced allergen	Health and nutrition	266	0.74
Wholegrain	Health and nutrition	262	0.73
Hormone-free	Food safety	134	0.37
Low/no/reduced lactose	Health and nutrition	119	0.33
Gluten-free	Health and nutrition	118	0.33
Diabetic	Health and nutrition	114	0.32
Anti-ageing	Health and nutrition	104	0.29
Caffeine-free	Health and nutrition	80	0.22
Low/no/reduced saturated fat	Health and nutrition	62	0.17
Stanols/sterols	Health and nutrition	56	0.16
Low/no/reduced glycemic	Health and nutrition	6	0.02
Low/no/reduced carb	Health and nutrition	5	0.01
Total		35,803	100.0

Source: Own elaboration based on Mintel's GNPD database. Note: ¹ Considers the entire database, i.e., data from 1997 to December 2016.

4.2. Trends in the Launching of Products Making Health, Nutritional, and Food Safety Claims

Figure 5 shows the evolution of the top 10 health, nutrition, and food safety claims over time. There is a substantial difference between the number of products making the claim 'no additives and preservatives' and the rest. Regarding the claims other than 'no additives and preservatives', they also show a positive trend, but this trend is more modest. Table 3 illustrates the trends in the launching of products making health, nutritional, and food safety claims within each product category. As was expected, not all the claims were present in all the product categories. The table shows that for the case of products making food safety claims (i.e., 'all natural', 'GMO-free', 'hormone-free', and 'no additives/preservatives'), the products increasing fastest are those with the 'no additives/preservatives' claims, followed by 'GMO-free' products and 'hormone-free' products. In contrast, 'all natural' products show below average growth rates, with a statistically significant coefficient around 0.2 for the juice drinks, breakfast cereals, and water categories. The 'GMO-free' claim was found to be important for sauces and seasoning, with a statistically significant coefficient of almost 0.5. Moreover, products making the 'no additives or preservatives' claim were above the mean growth for several categories, especially for juices and baby drinks. Finally, the claim 'hormone-free' was found to be important for new products in the processed fish, meat, and egg products category, and also for breakfast cereals and the fruit and vegetables categories.

One category of particular interest is dairy products due to the food scandals that have been associated with it (The Lancet 2014). For this category, the two claims that were found to be important were 'all natural' and 'no additive/preservatives', both showing growth that was statistically significant. Table 3 also includes a trend analysis for the case of health and nutrition claims. It should be noted that all the estimated coefficients were statistically significant and positive in almost all cases, revealing that new food products making health and nutrition claims were growing faster

than the average. However, important differences between the claims and the food categories were observed. For instance, meals and meal center products made only four of the studied claims that were growing—gluten-free, reduced allergens, low transfat, and vitamin and mineral fortified. This was important because these products were the most representative of a transition towards an unhealthy western diet high in fat, salt, and glycemic load (Baker and Friel 2016; Monteiro et al. 2013). The results also showed that the claims suppliers were introducing the most (i.e., in most food categories) were ‘vitamin and mineral fortified’, followed by products with ‘other function’ claims (e.g., good for the throat, with ingredients that improve health), ‘low or no allergens’, ‘low or reduced transfat’, and finally, those with ‘antioxidants’.

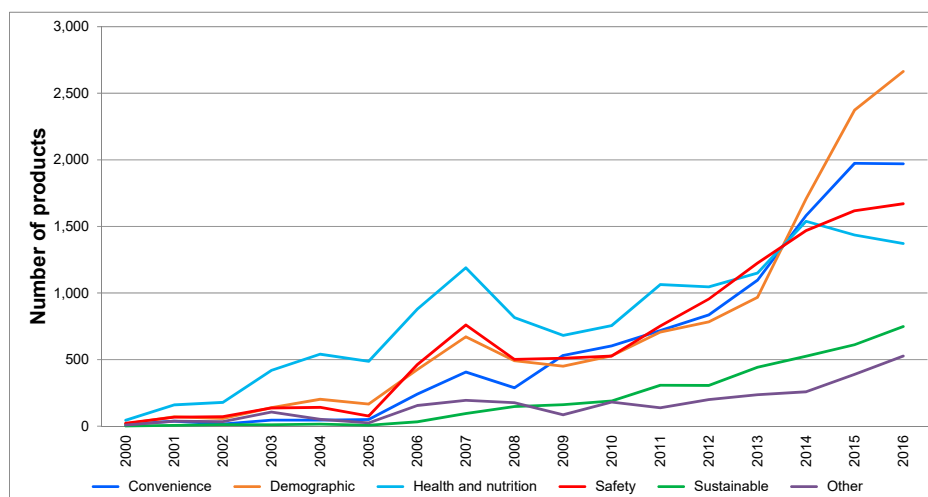


Figure 4. Number of launched products by claim group during 2000–2016. Source: Own elaboration based on Mintel’s GNPD data.

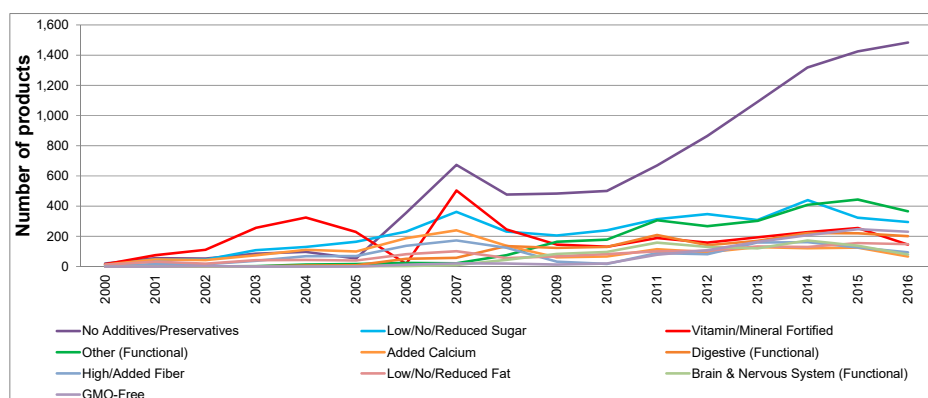


Figure 5. Number of launched products by top 10 health and nutrition claims during 2000–2016. Source: Own elaboration based on Mintel’s GNPD data.

When considering health claims by product category, the food category with a major number of health and nutrition claims was baby food, which showed growth for 18 out of the 28 health and nutrition claims considered, with the digestion, immune system, and diabetic being the ones with the highest coefficients. For the categories of fruit and vegetables and RTDs, 14 claims had been observed and all of these showed significant activity. For fruit and vegetables, the most relevant claims were immune system, brain and nervous system, added calcium, bone health, and digestion. RTDs were primarily associated with antioxidants and slimming claims. The categories of sauces and seasoning, snacks, juice drinks, and dairy followed in importance regarding the number of associated claims (13, 12, 11, and 11 respectively, out of 28 health and nutrition claims).

Table 3. Results of trend regressions on location quotient of products with health, nutrition, and food safety claims by product category.

	All Natural	GMO-Free	Hormone-Free	No Additives	Added Calcium	Anti-Ageing	Antioxidant	Bone Health
	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)
Snacks				0.02 (0.01) **	0.02 (0.01) *	0.03 (0.01) **	0.02 (0.01) **	
Bakery			0.01 (0.01) *		0.07 (0.02) **			
Sauces and Seasonings		0.49 (0.05) **	0.04 (0.02) **			0.07 (0.04) *	0.04 (0.02) *	
Dairy	0.09 (0.04) **			0.09 (0.03) **		0.16 (0.07) **	0.19 (0.09) **	0.34 (0.08) **
Sugar and Gum Confectionery	0.05 (0.02) **	0.01 (0.00) **					0.05 (0.02) **	0.02 (0.01) **
Processed Fish, Meat, and Egg Products	0.06 (0.02) **		0.30 (0.13) **					
Hot Beverages		0.02 (0.01) *		0.09 (0.03) **		0.24 (0.13) *	0.12 (0.06) *	
Juice Drinks	−0.20 (0.06) **			0.18 (0.03) **	0.06 (0.03) **		0.18 (0.09) *	
Meals and Meal Centers								
Desserts and Ice Cream		0.01 (0.00) **			−0.05 (0.02) **			
Breakfast Cereals	−0.21 (0.08) **	0.09 (0.02) **	0.18 (0.05) **			0.31 (0.13) **		0.27 (0.12) **
Fruit and Vegetables		0.06 (0.02) **	0.16 (0.04) **	0.06 (0.03) **	0.62 (0.24) **			0.48 (0.19) **
Baby Food				0.17 (0.09) *	0.66 (0.15) **		0.71 (0.15) **	
Chocolate Confectionery				0.01 (0.01) *	0.02 (0.01) **			
Alcoholic Beverages								
Other Beverages		0.07 (0.03) **					0.33 (0.15) **	0.22 (0.12) *
RTDs					0.04 (0.02) *		0.98 (0.36) **	0.25 (0.10) **
Side Dishes								
Water	−0.23 (0.11) **			0.03 (0.01) **			0.10 (0.05) **	
Sweet Spreads		0.01 (0.0) *					0.08 (0.04) *	
Carbonated Soft Drinks				0.03 (0.01) **				
Soup		0.07 (0.04) *						
Sweeteners and Sugar				0.07 (0.02) **			0.36 (0.17) **	
Sports and Energy Drinks								

Table 3. Cont.

	Brain System	Caffeine-Free	Cardiovascular	Diabetic	Digestive	Gluten-Free	High Protein	High Satiety
	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)
Snacks	0.01 (0.01) **		0.05 (0.02) **		0.02 (0.00) **		0.10 (0.03) **	
Bakery	0.01 (0.00) **		0.03 (0.01) **			−0.20 (0.11) *		
Sauces and Seasonings	0.01 (0.01) **		0.17 (0.06) **		0.01 (0.00) **		0.02 (0.01) **	
Dairy	0.21 (0.10) **					0.08 (0.03) **		
Sugar and Gum Confectionery	0.05 (0.01) **				0.02 (0.01) **	0.26 (0.09) **		
Processed Fish, Meat, and Egg Products						0.03 (0.01) *		
Hot Beverages						0.09 (0.03) **		
Juice Drinks	0.07 (0.02) **			0.08 (0.04) **	0.07 (0.02) **			
Meals and Meal Centers						0.03 (0.02) *		
Desserts and Ice Cream						0.06 (0.03) **		
Breakfast Cereals					0.24 (0.10) **		−0.28 (0.14) *	
Fruit and Vegetables	0.77 (0.29) **		0.09 (0.04) *		0.46 (0.16) **	0.10 (0.04) **		
Baby Food	1.30 (0.52) **		0.33 (0.13) **	1.38 (0.69) *	1.09 (0.24) **			
Chocolate Confectionery					0.01 (0.01) *	0.08 (0.04) *		
Alcoholic Beverages								79.91 (21.65) **
Other Beverages			−1.13 (0.38) **					
RTDs					0.07 (0.03) **		0.12 (0.06) *	0.08 (0.04) *
Side Dishes								
Water								0.04 (0.02) *
Sweet Spreads						0.15 (0.06) **		
Carbonated Soft Drinks								
Soup			0.35 (0.18) *		0.14 (0.05) **			
Sweeteners and Sugar	0.16 (0.09) *	2.93 (1.40) *						
Sports and Energy Drinks								

Table 3. Cont.

	High or Added	Immune	Low or No	Low or No	Low or No	Low or No	Low or No	Low or No
		System	Allergen	Calorie	Cholesterol	Fat	Lactose	Saturated fat
	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)
Snacks	0.03 (0.01) **		0.06 (0.02) **					
Bakery			0.12 (0.07) *			0.03 (0.01) **		
Sauces and Seasonings				0.02 (0.01) **	0.13 (0.04) **			
Dairy	0.11 (0.05) **					0.17 (0.07) **		0.42 (0.14) **
Sugar and Gum Confectionery			0.13 (0.05) **					
Processed Fish, Meat & Egg Products			0.02 (0.01) **				0.01 (0.01) *	
Hot Beverages			0.05 (0.02) **					
Juice Drinks			0.02 (0.01) **					
Meals and Meal Centers			0.01 (0.01) *					
Desserts and Ice Cream			0.06 (0.02) **					
Breakfast Cereals						−0.22 (0.08) **		
Fruit and Vegetables	0.19 (0.07) **	0.92 (0.36) **	0.23 (0.10) **				0.46 (0.18) **	
Baby Food	0.72 (0.25) **	1.63 (0.60) **	0.76 (0.27) **		0.24 (0.11) **			0.63 (0.28) **
Chocolate Confectionery			0.04 (0.02) *					
Alcoholic Beverages						0.01 (0.01) *		
Other Beverages		−1.58 (0.67) **						
RTDs	0.11 (0.03) **		0.07 (0.03) **			0.09 (0.04) **	0.11 (0.06) *	
Side Dishes				0.25 (0.11) **				
Water				0.39 (0.20) *				
Sweet Spreads			0.07 (0.03) **					
Carbonated Soft Drinks								
Soup								
Sweeteners and Sugar					0.09 (0.05) *			
Sports and Energy Drinks								

Table 3. Cont.

	Low or No Sodium	Low or No Sugar	Low or No Trans Fat	Other (Functional)	Prebiotic	Sliming	Vitamin/ Fortified	Wholegrain
	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)	β (SD)
Snacks		−0.02 (0.01) **		0.03 (0.01) **		0.07 (0.02) **	−0.02 (0.01) **	
Bakery		0.04 (0.01) **					−0.04 (0.01) **	
Sauces and Seasonings	0.21 (0.12) *		0.16 (0.06) **	0.01 (0.01) *	0.01 (0.01) *		0.029 (0.01) **	
Dairy		0.05 (0.02) **				0.09 (0.04) **	0.06 (0.03) **	
Sugar and Gum Confectionery		0.18 (0.04) **	0.07 (0.01) **		0.34 (0.10) **		0.05 (0.01) **	
Processed Fish, Meat, and Egg Products			0.02 (0.01) *	0.01 (0.01) *	0.03 (0.01) **			
Hot Beverages	0.09 (0.03) **	0.11 (0.04) **						0.17 (0.09) *
Juice Drinks			0.14 (0.07) *	0.09 (0.04) **		0.12 (0.05) **	0.14 (0.02) **	0.10 (0.04) **
Meals and Meal Centers			0.11 (0.04) **				0.03 (0.01) **	0.09 (0.04) **
Desserts and Ice Cream			0.07 (0.03) **	0.02 (0.01) **		0.37 (0.17) **	0.03 (0.01) **	
Breakfast Cereals	−0.43 (0.18) **		0.08 (0.02) **	0.14 (0.05) **				
Fruit and Vegetables	0.22 (0.11) *			0.36 (0.14) **			0.41 (0.16) **	0.04 (0.02) *
Baby Food		0.24 (0.05) **	0.07 (0.04) *	0.81 (0.19) **	0.63 (0.25) **	0.21 (0.08) **	0.33 (0.16) **	0.80 (0.35) **
Chocolate Confectionery			0.17 (0.04) **	0.02 (0.01) *	1.22 (0.64) *		0.02 (0.01) **	0.01 (0.01) *
Alcoholic Beverages							0.03 (0.02) *	0.15 (0.08) *
Other Beverages	0.03 (0.02) *		0.07 (0.03) **				0.08 (0.04) *	
RTDs				0.24 (0.06) **	0.12 (0.05) **	0.96 (0.27) **	0.07 (0.04) *	
Side Dishes			0.09 (0.04) **		0.18 (0.07) **		−0.06 (0.02) **	
Water		0.22 (0.05) **		0.07 (0.03) **			0.12 (0.05) **	
Sweet Spreads				0.03 (0.01) *			0.15 (0.07) **	
Carbonated Soft Drinks	0.50 (0.23) **				0.19 (0.08) **			
Soup				0.11 (0.04) **			−0.03 (0.02) *	
Sweeteners and Sugar				0.40 (0.12) **			0.55 (0.21) **	
Sports and Energy Drinks		0.24 (0.10) **		0.26 (0.11) **				

Source: Own elaboration based on Mintel's GNPD database. Note: β = coefficient SD = standard deviation. * and ** statistically significant at 5% and 1%, respectively.

For the product category ‘sauces and seasoning’, the most important growth was in the products with low or reduced sodium and low or reduced trans fats. Snacks displayed low coefficients for all claims (i.e., low growth), except for the case of ‘high protein’. This category also had a negative coefficient for the claim ‘low/reduced sugar and vitamin fortified’, indicating a reduction in the number of products introduced in this category and claims compared with the average products introduced. Given the increasing importance of snacks in Chinese consumption (Zhai et al. 2014), the fact that there were no claims with regards to calories or fat levels reflected that the new products that were launched aimed only at exploiting their increasing importance, but without aiming at improving their nutritional quality.

The health and nutrition claims that showed growth for juice drinks category were antioxidant, vitamin fortified, low/reduced trans fat, and slimming. In addition, dairy products displayed the following claims—bone health, brain and nervous system, antioxidants, and anti-ageing. Finally, the product category associated with less number of claims was savory spreads, with no activity for any claim, followed by sports and energy drinks, carbonate soft drink drinks, other beverages, and alcoholic beverages.

If we focus on the five top health and nutrition claims, it can be observed that the ‘low, no or reduced sugar’ claim is especially important for sports and energy drinks, baby food, water, and sugar and gum confectionary. The ‘vitamin, mineral fortified’ claim is associated with new sweeteners and sugars, fruit and vegetables, baby food, and sweet spread products. ‘Other function’ claims are employed for new sweeteners and sugars, fruit and vegetables, baby food, and RTDs. For the claims ‘added calcium’ and ‘digestive (improves digestion)’, a clear link to the categories baby food and fruits and vegetables can be observed.

Zhai et al. (2014) had characterized China’s changes in food consumption between 1991 and 2011 as a state in which macronutrient composition had shifted towards fats, and protein and sodium intakes remained high and potassium intake low. In this context, the results indicated that the introduction of new products might only partially offset these trends due to the fact that the number of products with low or reduced calories, fats, sodium, and sugar was still very limited. Moreover, growing categories associated with western diets, such as ready meals (i.e., meals and meal centers) and snacks, did not reflect these claims.

4.3. Major Companies Introducing Products with Health, Nutritional and Food Safety Claims

Table 4 illustrates which companies are leading the introduction of new products, making health and safety claims, and the importance of foreign retailers and manufacturers. As expected, due to the low number of private label products, all of the top five companies launching products making the selected claims were manufacturers and not retailers. It could be observed that the concentration of the number of products introduced by the top five companies was low in most of the cases except for three claims—low/reduced glycemic, low/reduced carbohydrates, and high satiety. For these claims, the products introduced by the top five companies represented about 50% or more of the products introduced. However, they were made by very few companies. The claims of low/reduced lactose, gluten-free, prebiotic, bone health, caffeine-free, low/reduced saturated fat, and hormone-free products introduced by the top five companies also represented from 20% to 50% of all products introduced in these categories. For the rest of the claims, the introduction of new products with health claims was distributed among a large number of companies. This situation revealed a low concentration on the introduction of food products by companies in the Chinese market, i.e., many firms introduced few products each.

Table 4. Top 5 companies introducing products with safety, health and nutrition claims during the period 1997–2016.

Category	Firm	Firm type	Origin	Associated Categories	Total Launched Products	Percentage of Products in Category
Added Calcium	Heinz	Manufacturer	Western	Baby food	47	2.73
	Nestlé	Manufacturer	Western	Baby food, Breakfast Cereals, Dairy, Hot Beverages	43	2.49
	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Baby food, Dairy	31	1.80
	Fang Guang	Manufacturer	Chinese	Baby food	30	1.74
	Nabisco	Manufacturer	Western	Bakery, Snacks	27	1.57
Antioxidant	Mondelez	Manufacturer	Western	Bakery	17	4.89
	Nestlé	Manufacturer	Western	Baby food, Dairy, Other Beverages	11	3.16
	Wondersun Dairy	Manufacturer	Chinese	Baby food, Dairy	10	2.87
	Liao Yuan Dairy	Manufacturer	Chinese	Baby food	9	2.59
	Kraft Foods	Manufacturer	Western	Other Beverages	7	2.01
Brain & Nervous System (Functional)	Heinz	Manufacturer	Western	Baby food, Dairy	37	3.58
	Inner Mongolia Mengniu Dairy Group	Manufacturer	Chinese	Baby food, Dairy	37	3.58
	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Baby food, Dairy	34	3.29
	Nestlé	Manufacturer	Western	Baby food, Dairy, Other Beverages	30	2.90
	Fang Guang	Manufacturer	Chinese	Baby Food	27	2.61
Cardiovascular (Functional)	Alpha Health Care Products	Manufacturer	Chinese	Bakery	5	1.71
	Dou Bang	Manufacturer	Chinese	Snacks	4	1.37
	Nestlé	Manufacturer	Western	Dairy, Side Dishes	4	1.37
	Haojiayi Dairy	Manufacturer	Chinese	Dairy	3	1.03
	Huang Yu Tech	Manufacturer	Chinese	Dairy	3	1.03
Digestive (Functional)	Inner Mongolia Mengniu Dairy Group	Manufacturer	Chinese	Desserts & Ice Cream, Dairy, Baby Food.	63	3.77
	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Dairy, Baby Food	51	3.06
	Nestlé	Manufacturer	Western	Dairy, Baby Food, Breakfast Cereals, Hot Beverages, Side Dishes	41	2.46
	Heinz	Manufacturer	Western	Dairy, Baby Food	38	2.28
	Bright Dairy & Food	Manufacturer	Chinese	Juice Drinks, Dairy, Baby Food	25	1.50
High Protein	Coca-Cola	Manufacturer	Western	Dairy	18	2.23
	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Dairy, Baby Food, Bakery	15	1.86
	Wondersun Dairy	Manufacturer	Chinese	Dairy, Baby Food	13	1.61
	Beingmate Group	Manufacturer	Chinese	Dairy, Baby Food	10	1.24
	General Mills	Manufacturer	Western	Meals & Meal Centers	10	1.24
High Added Fiber	PepsiCo	Manufacturer	Western	Dairy, Breakfast Cereals, Hot Beverages, Other beverages	30	2.14
	Nestlé	Manufacturer	Western	Dairy, Baby Food, Breakfast Cereals, Hot Beverages	23	1.64
	Liuliu Orchard	Manufacturer	Chinese	Snacks	17	1.21
	Inner Mongolia Mengniu Dairy Group	Manufacturer	Chinese	Dairy, RTDs	14	1.00
	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Dairy, Bakery	13	0.93

Table 4. Cont.

Category	Firm	Firm type	Origin	Associated Categories	Total Launched Products	Percentage of Products in Category
Low/No/Reduced Allergen	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Dairy	12	4.51
	Inner Mongolia Mengniu Dairy Group	Manufacturer	Chinese	Dairy	10	3.76
	August Töpfer & Co	Manufacturer	Western	Baby Food	6	2.26
	Fantastic Snacks	Manufacturer	Western	Snacks	5	1.88
	Silk	Manufacturer	Western	Dairy	5	1.88
Low/No/Reduced Carb	Kang Zhi Quan Soda Water	Manufacturer	Chinese	Water	1	20.00
	Lin Hai Xue Yuan Brewing	Manufacturer	Chinese	Water	1	20.00
	Thai Hajima Trading	Manufacturer	Other Asian	Snacks	1	20.00
	Tsingtao Beer	Manufacturer	Chinese	Alcoholic Beverages	1	20.00
	General Nutrition Corporation-GNC	Manufacturer	Western	Other Beverages	1	20.00
Low/No/Reduced Fat	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Dairy	44	3.27
	Nestlé	Manufacturer	Western	Dairy, Breakfast Cereals, Chocolate Confectionery.	23	1.71
	Wei Chuan Food	Manufacturer	Other Asian	Dairy	22	1.64
	Bright Dairy & Food	Manufacturer	Chinese	Dairy	18	1.34
	Inner Mongolia Mengniu Dairy Group	Manufacturer	Chinese	Dairy	14	1.04
Low/No/Reduced Lactose	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Dairy	15	12.61
	Inner Mongolia Mengniu Dairy Group	Manufacturer	Chinese	Dairy	10	8.40
	Yeo Hiap Seng	Manufacturer	Chinese	Dairy	5	4.20
	Abbott Laboratories	Manufacturer	Western	Baby Food	4	3.36
	Longdan Dairy	Manufacturer	Chinese	Baby Food	4	3.36
Low/No/Reduced Sodium	Kagome	Manufacturer	Other Asian	Juice Drinks, Sauces & Seasonings	17	4.67
	Heinz	Manufacturer	Western	Sauces & Seasonings, Baby Food	14	3.85
	China Salt	Manufacturer	Chinese	Sauces & Seasonings	6	1.65
	Sichuan Weijute Food	Manufacturer	Chinese	Sauces & Seasonings	6	1.65
	Wei Xing Foods	Manufacturer	Chinese	Sauces & Seasonings	5	1.37
Low/No/Reduced Transfat	Liwayway Food	Manufacturer	Chinese	Snacks, Bakery	47	9.40
	Orion Food	Manufacturer	Other Asian	Bakery, Snacks	39	7.80
	Want Want	Manufacturer	Chinese	Breakfast Cereals, Snacks, Hot Beverages	27	5.40
	PepsiCo	Manufacturer	Western	Breakfast Cereals, Dairy	25	5.00
	Nestlé	Manufacturer	Western	Bakery, Hot Beverages	17	3.40
Prebiotic	Inner Mongolia Mengniu Dairy Group	Manufacturer	Chinese	Baby Food, Dairy, Desserts & Ice Cream	55	6.77
	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Baby Food, Dairy	45	5.54
	Heinz	Manufacturer	Western	Baby Food	37	4.55
	Fei He Dairy	Manufacturer	Chinese	Baby Food, Dairy	17	2.09
	Chuang Kang Food & Beverage	Manufacturer	Chinese	Other Beverages, Dairy	15	1.85

Table 4. Cont.

Category	Firm	Firm type	Origin	Associated Categories	Total Launched Products	Percentage of Products in Category
Vitamin/Mineral Fortified	Nestlé	Manufacturer	Western	Baby Food, Dairy, Breakfast Cereals, Hot Beverages, Energy Drinks	110	3.05
	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Baby Food, Dairy	66	1.83
	Heinz	Manufacturer	Western	Baby Food, Bakery	62	1.72
	Inner Mongolia Mengniu Dairy Group	Manufacturer	Chinese	Baby Food, Dairy	47	1.30
	Bright Dairy & Food	Manufacturer	Chinese	Baby Food, Dairy, RTDs	45	1.25
Anti-Ageing	New Hope Dairy	Manufacturer	Chinese	Dairy	3	2.88
	Ao Chao Agriculture Technology	Manufacturer	Chinese	Snacks	2	1.92
	Doubly Biological Technology	Manufacturer	Chinese	Sports & Energy Drinks	2	1.92
	Jing Feng Food	Manufacturer	Chinese	Snacks, Meals & Meal Centers	2	1.92
	Mengchun Dairy	Manufacturer	Chinese	Dairy	2	1.92
Bone Health	Nestlé	Manufacturer	Western	Baby food, Breakfast Cereals, Dairy, Hot Beverages	54	5.77
	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Baby food, Dairy	49	5.24
	Heinz	Manufacturer	Western	Baby food	38	4.06
	Fang Guang	Manufacturer	Chinese	Baby food	26	2.78
	Beingmate	Manufacturer	Chinese	Baby food	23	2.46
Caffeine Free	Jianlibao Group	Manufacturer	Chinese	Sports Drinks	9	11.25
	Prince Dairy	Manufacturer	Chinese	Baby Cereals	4	5.00
	Kokei Food	Manufacturer	Chinese	Hot Beverages	3	3.75
	Twinings	Manufacturer	Western	Hot Beverages	3	3.75
	Wahaha Group	Manufacturer	Chinese	Carbonated Soft Drinks	3	3.75
Diabetic	Alpha Health Care Products	Manufacturer	Chinese	Sweeteners & Sugar, Side Dishes, Breakfast Cereals, Bakery	9	7.89
	Lijia Food	Manufacturer	Chinese	Hot Beverages, Breakfast Cereals	3	2.63
	Heilongjiang Canwang Healthcare Foods Co	Manufacturer	Chinese	Savoury Biscuits/Crackers, White Milk	2	1.75
	Jiangsu Fukang Foods Factory	Manufacturer	Chinese	Hot Beverages	2	1.75
	Mengchuan Green-Food	Manufacturer	Chinese	Sauces & Seasonings	2	1.75
Gluten Free	August Töpfer & Co	Manufacturer	Western	Baby Food	6	5.08
	Fantastic Snacks	Manufacturer	Western	Snacks	5	5.08
	GangRong Foodstuff Development	Manufacturer	Chinese	Bakery	4	5.08
	Beijing Kongweng Foods	Manufacturer	Chinese	Bakery	3	5.08
	Capital Trading	Manufacturer	Other Asian	Snacks	3	5.08
High Society	Royal Family Food	Manufacturer	Other Asian	Bakery	4	16.00
	Carman's Fine Foods	Manufacturer	Western	Breakfast Cereals	2	8.00
	Hunan Taier Pharmacy	Manufacturer	Chinese	Other Beverages	2	8.00
	Kang Bi Te	Manufacturer	Chinese	Other Beverages	2	8.00
	Liwayway Food	Manufacturer	Chinese	Snacks, Bakery	2	8.00

Table 4. Cont.

Category	Firm	Firm type	Origin	Associated Categories	Total Launched Products	Percentage of Products in Category
Immune System	Wondersun Dairy	Manufacturer	Chinese	Dairy, Baby Food	19	3.84
	Liao Yuan Dairy	Manufacturer	Chinese	Dairy, Baby Food	17	3.43
	Fei He Dairy	Manufacturer	Chinese	Baby Food	15	3.03
	Nestlé	Manufacturer	Western	Dairy, Baby Food	15	3.03
	Wyeth	Manufacturer	Western	Baby Food	15	3.03
Low/No/Reduced Calorie	PepsiCo	Manufacturer	Western	Carbonated Soft Drinks, Juice Drinks, Water	14	2.92
	Coca-Cola	Manufacturer	Western	Carbonated Soft Drinks	13	2.71
	Kai Tao Qi Food	Manufacturer	Chinese	Snacks	8	1.67
	Royal Family Food	Manufacturer	Other Asian	Bakery	7	1.46
	Ba Wang Si Industrial	Manufacturer	Chinese	Carbonated Soft Drinks	5	1.04
Low/No/Reduced Cholesterol	Guangdong Black Cow Foods Industry Co	Manufacturer	Chinese	Dairy, Breakfast Cereals, Hot Beverages	10	1.45
	Hangzhou Zuming Foods	Manufacturer	Chinese	Dairy	10	1.45
	Vitasoy (Bright) Food & Beverage	Manufacturer	Chinese	Dairy	10	1.45
	AB Food & Beverages	Manufacturer	Western	Dairy, Hot Beverages	9	1.30
	Changkang Hunan	Manufacturer	Chinese	Sauces & Seasonings	7	1.01
Low/No/Reduced Glycemic	Carman's Fine Foods	Manufacturer	Western	Breakfast Cereals	2	33.33
	Fudelante Trade	Manufacturer	Chinese	Sugar & Gum Confectionery	1	16.67
	Qingdao Kanghaiyuan Industry	Manufacturer	Chinese	Bakery	1	16.67
	Vitality Brands Worldwide	Manufacturer	Western	Snacks	1	16.67
	Xiwang Sugar	Manufacturer	Chinese	Sweeteners & Sugar	1	16.67
Low/No/Reduced Saturated Fat	Guilin Zhiqiang Food Development	Manufacturer	Chinese	Breakfast Cereals, Hot Beverages	7	11.29
	Wahaha Group	Manufacturer	Chinese	Dairy	6	9.68
	Guilin Zhiqiang Foods Improved	Manufacturer	Chinese	Hot Beverages	3	4.84
	Vitasoy (Bright) Food & Beverage	Manufacturer	Western	Dairy	3	4.84
	Vitasoy International Holdings	Manufacturer	Western	Dairy	3	4.84
Low/No/Reduced Sugar	Wrigley	Manufacturer	Western	Sugar & Gum Confectionery	71	1.87
	Perfetti Van Melle	Manufacturer	Western	Sugar & Gum Confectionery	40	1.05
	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Sugar & Gum Confectionery, Desserts & Ice Cream, Dairy	32	0.84
	Orion Food	Manufacturer	Other Asian	Sugar & Gum Confectionery	31	0.82
	Nestlé	Manufacturer	Western	Sugar & Gum Confectionery, Baby Food, Dairy, Hot Beverages	27	0.71
Other (Functional)	Inner Mongolia Yili Industrial Group	Manufacturer	Chinese	Dairy, Sugar & Gum Confectionery, Meals & Meal Centers	65	2.51
	Heinz	Manufacturer	Western	Baby Food, Dairy,	62	2.39
	Nestlé	Manufacturer	Western	Baby Food, Dairy, Breakfast Cereals, Hot Beverages	48	1.85
	Fang Guang	Manufacturer	Chinese	Baby food	40	1.54
	Inner Mongolia Mengniu Dairy Group	Manufacturer	Chinese	Baby Food, Dairy	33	1.27

Table 4. Cont.

Category	Firm	Firm type	Origin	Associated Categories	Total Launched Products	Percentage of Products in Category
Slimming	Food Vending China	Manufacturer	Chinese	Desserts & Ice Cream	7	3.76
	Royal Family Food	Manufacturer	Asiatic	Bakery	4	2.15
	SinoConnect Group	Manufacturer	Chinese	Hot Beverages, Other Beverages	3	1.61
	Xing Ding Food	Manufacturer	Chinese	Desserts & Ice Cream	3	1.61
	Beidahuang Feng Wei Food	Manufacturer	Chinese	Dairy	2	1.08
Wholegrain	Nestlé	Manufacturer	Western	Baby Food, Breakfast Cereals, Hot Beverages	16	6.11
	Cereal Partners	Manufacturer	Western	Breakfast Cereals	8	3.05
	Weetabix	Manufacturer	Western	Breakfast Cereals	8	3.05
	Kraft Foods	Manufacturer	Western	Bakery, Breakfast Cereals	6	2.29
	Mankattan Food	Manufacturer	Chinese	Bakery	6	2.29
All Natural	Tenwow Group	Manufacturer	Chinese	Snacks, Breakfast Cereals	6	0.79
	Andros	Manufacturer	Western	Juice Drinks, Sweet Spreads	4	0.53
	GangRong Foodstuff Development	Manufacturer	Chinese	Bakery	4	0.53
	Kang Pu Bio-Tech	Manufacturer	Chinese	Juice Drink	4	0.53
	Nongmao Foodstuff	Manufacturer	Chinese	Snacks	4	0.53
Hormone Free	Tyson Hua Dong Food Development	Manufacturer	Chinese	Processed Fish, Meat & Egg Products	12	8.96
	Sheng Mu High-Tech Dairy	Manufacturer	Chinese	Dairy	10	7.46
	Yibang Foods	Manufacturer	Chinese	Fruit & Vegetables, Side Dishes	10	7.46
	Best Food	Manufacturer	Chinese	Eggs & Egg Products	5	3.73
	Haiba Biological & Technology	Manufacturer	Chinese	Baby Food	4	2.99
GMO Free	Yihai Kerry Food	Manufacturer	Chinese	Soy Based Drinks, Oils	19	1.69
	Vitasoy (Bright) Food & Beverage	Manufacturer	Chinese	Soy Based Drinks	14	1.25
	Sichuan Qianhe Flavoring	Manufacturer	Chinese	Sauces & Seasonings	13	1.16
	Cofco	Manufacturer	Chinese	Sauces & Seasonings	12	1.07
	Baling Oils and Fats	Manufacturer	Chinese	Sauces & Seasonings	11	0.98
No Additives/Preservatives	Sanquan Foods	Manufacturer	Chinese	Desserts & Ice Cream, Meals & Meal Centers, Snacks, Bakery	147	1.51
	Inner Mongolia Mengniu Dairy Group	Manufacturer	Chinese	Dairy, Desserts & Ice Cream	80	0.82
	Bright Dairy & Food	Manufacturer	Chinese	Baby Food, Dairy, Juice Drinks, RTDs	67	0.69
	Heinz	Manufacturer	Western	Baby Food, Fruit & Vegetables, Sauces & Seasonings	52	0.54
	General Mills	Manufacturer	Western	Snacks, Sugar & Gum Confectionery	52	0.54

Source: Own elaboration based on Mintel's GNPD database.

Despite the above, some companies are particularly active in the development of products associated with different claims, such as the Chinese dairy companies Inner Mongolia Yili Industrial Group and Inner Mongolia Mengniu Dairy Group. Moreover, the top five companies launching products with anti-ageing, diabetic, hormone-free, and GMO-free claims are Chinese.

Regarding the role of western suppliers in the Chinese market, it is clear that some multinational companies play an important role in introducing new products making health, nutrition, and food safety claims. Thus, firms such as Nestlé and Heinz are very active, showing in the top five ranking for several claims (14 out of 34 selected claims). Others such as PepsiCo and Coca-Cola are also leading the introduction of new products in some of the claim categories (e.g., high protein, high added fiber, and reduced calories). Western manufacturers are also particularly important for the introduction of wholegrain products.

5. Conclusions

The purpose of this paper was to explore the launching of food and drink products with health, nutrition, and food safety attributes by product category in China. This is important because the literature points out that China's food consumption patterns and eating and cooking behaviours have been changing dramatically towards an unhealthy western diet since the 1990s. Therefore, the availability of products with healthier and safer attributes, if adopted by consumers, can help to some extent to offset this trend.

It is important to highlight that the analysis indicated that about 50% of the products introduced in the Chinese market do not make any associated claim. This shows issues regarding the communication of food attributes to consumers, which can be very useful to consumers as a guide to improve their diet. The data showed that the Chinese retail market is dynamic, and it is continuously launching new food and drink products extending consumers' preference, with snacks and bakery as the leading categories.

This is expected to reinforce the observed increase in snacking, which is one of the highlighted trends in Chinese consumption. According to Statista (2018), the retail sales value of the snack food market in China increased from 191.7 billion yuan in 2009 to 544.5 billion yuan in 2018. Whilst the data showed some positive trends towards the introduction of snacks with reduced or low sugar, snacks with reduced calories, fat, cholesterol, or saturated fats were not found. The most popular animal-source food in China is pork, and the consumption of poultry and eggs are also increasing. This is reflected in the new product data by an increase in the introduction of processed fish, meat and egg products, and ready meals (i.e., meals and meal centres). However, similar to snacks, these products do not reflect many attributes that may improve Chinese diets.

Products making food safety claims, particularly those with the 'no additives or preservatives' claim, were found to be increasingly important. This was not surprising due to the history of food scandals in China, and products making these claims certainly aimed at restoring consumers' trust in food. The food categories where health and nutrition attributes were more actively communicated were baby food, fruit and vegetables, and RTDs, and the five top health and nutrition claims were 'low, no or reduced sugar', 'vitamin, mineral fortified', 'other functional', 'added calcium', and 'digestive (improves digestion)'.

Regarding which companies were leading the introduction of new food making health, nutrition, and food safety claims, it was observed that the introduction of new products was mostly in the hands of Chinese firms, and it was very fragmented (the top launching companies represented a small percentage of the total number of products introduced in a category). Western firms played an important role in the introduction of new products in several claim categories, but they also represented a small percentage of the total number of launched products. With regards to branded versus private labels, retailers did not play a significant role in developing new products under their private labels, and they represented less than 4%. This result was in line with that of Xu et al. (2018), and explained the lack of awareness that Chinese consumers, especially those aged over 40, had regarding private labels (Mintel 2016; Lupton et al. 2010).

Overall, whilst the analysed data showed some trends towards an increase in the number of products making health, nutrition, and food safety claims, it was clear that the new food and drink products being launched followed the consumption trends highlighted in the literature. Manufacturers and retailers were extending the offer of food to fulfill the needs of a population looking for convenient and on-the-go food such as snacks and bakery with limited associated health claims. Therefore, the data showed that food suppliers were not trying to improve the Chinese diet by launching a higher proportion of healthy products. Thus, companies were making a significant effort on differentiating safe and natural products to conquer consumer trust.

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